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ABSTRACT

A study examined the coverage of the scientific aspects of the atomic bomb in four representative newspapers (New York "Times," New York "Herald Tribune," Chicago "Daily Tribune," and Boston "Daily Globe") and in 14 general mass circulation magazines in the time period immediately following the dropping of the bomb. Among the conclusions of the study are that (1) the government's elaborate secretive preparations for informing the public about the nature of the bomb proved generally ineffective; (2) newspapers--with the exception of the New York "Times"--were not relaying information related to the scientific aspects of the bomb but rather were concentrating on the drama of the bomb and its effect on the war; (3) mass circulation magazine coverage from August through December 1945 ran the gamut from the simplistic to the highly technical, yet in general offered only token explanations of the science of the bomb; and (4) the scientific community, not the media, took the lead in speaking out for understanding and control of the bomb. (AEA)

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INTERPRETING THE ATOMIC AGE: SCIENTIFIC NEWS COVERAGE OF THE ATOMIC BOMB IN REPRESENTATIVE NEWSPAPERS AND MAGAZINES

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INTERPRETING THE ATOMIC AGE:
SCIENTIFIC NEWS COVERAGE OF THE ATOMIC BOMB
IN REPRESENTATIVE NEWSPAPERS AND MAGAZINES

The Manhattan Engineering District that led to the development of the atomic bomb was perhaps the most elaborate and carefully executed scret government project in our nation's history. No detail in the $2 million project was spared to make it a success. One consideration which easily could have been overlooked, yet was not, was the government's need to explain this awesome new creation to the American people.

This report traces the evolution in the mass media of science information related to the development of the atomic bomb from the late 1930s--when it was discovered that enormous energy locked in the atom could be released--through the war years--when a blackout was imposed on anything related to atomic energy--to the birth and afterbirth of that historic August day when one bomb called "Thin Man" destroyed an entire city and changed the course of the war, and the world.

The study examines the coverage of the scientific aspects of the atomic bomb in four representative newspapers and in 14 general mass circulation magazines in the days and months immediately following the dropping of the bomb.

The analysis reveals that:

(1) The government's elaborate secretive preparations for informing

the public about the nature of the bomb proved generally ineffective.

(2) Newspapers (with the exception of the New York Times) were not relaying information related to the scientific aspects of the bomb but rather were concentrating on the drama of the bomb and its effect on the war.

(3) Mass circulation magazine coverage from August through December of 1945 ran the gamut from simplistic to highly technical, yet in general offered only token explanations of the science of the bomb.

(4) The scientific community, not the media, took the lead in speaking out for understanding and control of the bomb.

BACKGROUND

Introduction

In the wake of the atomic bomb explosions over Hiroshima and Nagasaki, a flood of stories appeared in the press trying to explain "where it all began." Some articles suggested a beginning as far back as 1896 with the discovery of radioactivity. Others set the origin of the atomic age in 1939 with the discovery of uranium fission. Still others set the dawn of the atomic age on July 16, 1945, when the first man-made "sun" rose over the desert near Alamogordo, N.M., in the first test of the bomb.

For the purposes of this study into the birth of atomic energy information for the layman, "it all began" in the late 1930s when scientists here, in Germany and in Italy, were still able to openly discuss their discoveries in the area of nuclear physics.

Scientists Alert the Government

In February 1939 an informal meeting was held at the close of the prestigious annual meeting of the American Physical Society in New York

"for the discussion of the splitting of uranium atoms." Covering the session for the New York Times was science reporter William L. Laurence, who jotted down notes in amazement as Niels Bohr of Denmark and Enrico Fermi of Italy began to reveal a portion of their revolutionary laboratory developments in unlocking the atom's secrets.[1]

Laurence's thoughts began to race ahead, speculating that "this new Promethean fire...could be used by Hitler as the most destructive weapon in history."

After the meeting, recalled Laurence, "I put the question bluntly to the two great men: 'Could not a small quantity of uranium 235, say just one kilogram, be used as a bomb equal to thousands of tons of TNT?'"

After a pause Fermi replied, "We must not jump to hasty conclusions.... We will have to learn a lot more before we know the answer. It will take many years...at least twenty-five, possibly fifty."[2]

Laurence discovered six years later when talking with Fermi and Bohr again--this time at the Manhattan District's Los Alamos atomic bomb plant--that Fermi's answer was intended to discourage him. For the world's nuclear scientists in 1939 already were cognizant of the military implications of their discoveries and were fearful of what the Nazis might do with this information.

In fact, it was only the following month, March 16, 1939, that a group of concerned scientists (many of them exiles from Germany) tried to interest the U.S. government in the possibility of a new and extremely powerful explosive formed from uranium. Two of the scientists, Fermi and Leo Szilard, both then at Columbia University, urged their boss, Dean George B. Pegram, to write a letter of introduction for Fermi to carry with him to Washington to alert the proper military officials to "the

possibility that uranium might be used as an explosive that would liberate a million times as much energy per pound as any known explosive." With some skepticisms, Pegram did so. The government's reply, however, was a polite, "Thank you for bringing this interesting matter to our attention. Kindly keep us informed regarding further developments."[3]

Yet this disinterest by the government only heightened the scientists' concern about the impending threat of Germany's involvement in uranium fission. And they determined to try again--this time going directly to President Roosevelt with Albert Einstein as the emissary.

Einstein composed a letter to the president that emphasized three points: (1) the studies of uranium fission foreshadowed possible atomic power for extremely powerful atomic bombs; (2) the Germans were aware of this possibility; and (3) a single atomic bomb could create enormous destruction.[4]

The president's reaction, however, was lukewarm at best. Some six months after receiving Einstein's letter, Roosevelt established an Advisory Committee on Uranium and allotted it $6,000 for uranium research.

It was not until December 1941 (just one week after the Japanese attack on Pearl Harbor) when the president received urgent reports from a national scientific committee and a group of British scientists confirming that an atomic bomb was feasible and of imminent importance that progress really began.[5]

It was then that the Office of Scientific Research and Development (OSRD) (of which the Uranium Committee was a part) was reorganized and the actual go-ahead given for developing pilot atomic plants.[6] On August 13, 1942, the Manhattan project was officially established, first

designated "DSM" (Development of Substitute Materials), and later changed to "MED" (Manhattan Engineering District).[7] And on September 23, 1942, Brigadier General Leslie R. Groves of the Army Corps of Engineers was placed in charge of the project.

Even before Groves was chosen to head up the project, Dr. J. Robert Oppenheimer, then at the University of California, was appointed by Arthur Compton under the OSRD to take charge specifically of the bomb development aspect, and in July 1943 Groves set Oppenheimer in charge of operations at Los Alamos, N.M., where the bomb was designed and assembled.

In less than two years secret cities sprung up across the country, all interwoven as part of the $2 million Manhattan Engineering District. The "district" stretched from Hanford, Wash., where DuPont produced the first plutonium, to Oak Ridge, Tenn., where the U-235 electromagnetic and gaseous diffusion plants were built; and from Stagg Field at the University of Chicago where the atomic pile was tested to Alamogordo, N.M., where the bomb was tested. Each center worked on its phase of the project independently, with only a select few scientists and military officers aware of how the pieces fit together.

Science News Disappears

From early 1939 through the end of 1941 the scientists had assumed the leadership role. It was they who had to prod the government; they who had to take the risks; and they who had to make the professional sacrifices necessary for what they felt was the free world's most urgent task: to produce an atomic bomb before Germany did.

The climate was one of international cooperation and singleness of purpose. Dr. Louis Ridenour of MIT commented on the mood of the

scientific community during those years:[8]

> ...From the beginning of 1939 to the end of 1941, the behavior of scientists contrasts markedly with that of the Army and Navy. While the attitude of the armed forces toward the project was characterized at best by caution, usually by lassitude, and at worst by active opposition, the scientists involved voluntarily gave up, in behalf of the project, that which they held most precious: freedom from publication.

Compton also noted that "as early as 1939 (the scientists) entered into a voluntary agreement to stop publication of data of possible military interest, with special emphasis on uranium work." And as more scientists joined the war effort, fewer and fewer papers dealing with these matters appeared in science journals.[9]

In 1940 the last of the significant stories on atomic energy appeared in the mass media. Two were written by Laurence, one of which appeared on page 1 of the New York Times on May 5, 1940, announcing the isolation and bombardment of the uranium isotope 235;[10] and the second, a far lengthier version of the May 5 story, appeared in the Sept. 7, 1940, issue of the Saturday Evening Post entitled, "The Atom Gives Up."[11]

Laurence, since his talk with Bohr and Fermi in 1939, had been piecing together bits of the atomic puzzle and wanted to write "the Big Story." After some haggling with the Times managing editor, Laurence was able to convince him that the story, complete with evidence of what the Germans were doing and the scientific and military implications of the research, was worthy of top billing and succeeded in getting seven columns of type in the May 5 issue of the newspaper.[12]

But there was no reaction to his revolutionary story, so Laurence again tried to arouse interest in a possible "atom bomb" through the lengthy Post article:[13]

> The least I expected as the result of the publication of the article was to be called to Washington by one or more agencies of government for further details about such an important subject. But nothing happened. Congress was still in recess, an exciting Presidential election was underway, and no one seemed to be interested in the atom.

Laurence was not the only popular science writer aware of the coming atomic age. In June 1940, John J. O'Neill, science editor of the New York Herald Tribune, wrote an in-depth article, "Enter Atomic Power," for Harper's Magazine. Although O'Neill made no reference to "atomic bombs," he discussed atomic theory at length and went into great detail on possible power sources and economic and medical applications.[14]

A year later, August 1941, O'Neill, who was then president of the National Association of Science Writers, charged that the government had begun actively to censor laboratory experiments on uranium-235. "...Our politicians have taken over control of scientists who have been working on the application and control of (U-235) and are driving them to develop it for war uses," he declared.[15]

If O'Neill wasn't totally correct in August, he was by December of 1941. The day after the Japanese attack on Pearl Harbor, the Communications Board and Office of Censorship were created, complete with a Press Code which made off-limits "any information about new or secret military designs, formulas or experiments; secret manufacturing processes or secret factory designs; either for war production or capable of adaptation for war production."[16]

Byron Price, director of the Office of Censorship, issued a sweeping directive requesting that nothing be published regarding atom smashing. It superseded the regular censorship code in two ways: (1) the directive was retroactive and applied even to data published before

the war; and (2) if an article inadvertently was published, it was not to set a precedent for free discussion or even repetition of the information.[17]

Actually, there was no law, only a code, but one with which newsmen, publishers, and broadcasters voluntarily complied. In charge of this successful persuasion effort for the Manhattan Project was Lt. Col. William A. Consodine. Although his only authority was the tune, "Take my word for it. This thing is big and important. When it breaks, you won't be scooped. You'll get all the information it's possible to give," he had almost complete cooperation.[18]

Not everyone was pleased, however, with the science news blackout. In May 1942 Time carried an article, "Science Hush-Hushed," commenting on the fact that "not a word about chemistry or physics...was heard at last fortnight's meeting of the American Philosophical Society." The article went on to say that[19]

> ...the biggest scientific news of 1942 (is) that there is less and less scientific news. Technical journals are thinner by as much as 50 per cent, and they will get more so....A year ago one out of four physicists was working on military problems; today, nearly three out of four....

The article's prophetic final comment was, "Today's momentous scientific achievements will not be disclosed until the war's end."

Also keenly aware that something was up was science writer Laurence. He had noticed that one by one the leading scientists were disappearing to parts unknown.

"Shortly after Pearl Harbor...a heavy curtain of secrecy, so thick that one could feel it in the air, hid everything pertaining to the atom," Laurence said. He continued to write stories speculating on the secret weapons Hitler was boasting would win the war for him, but any story

mentioning uranium, atomic energy, etc., had to be submitted to Price's office, and they were all returned to Laurence with the request not to publish.[20]

It is possible that Laurence's bombardment of the Office of Censorship with his speculative stories on the atomic bomb may have helped lead Gen. Groves to the New York Times office in April 1945 to enlist his aid. Groves was looking for someone to help prepare the President's statements on the bomb and the many others that would be necessary once the bombs were used. He was already familiar with Laurence's work, having censored his 1940 Post story. And after screening Laurence's background, he made his offer to the science writer without disclosing the purpose of the project.[21]

After accepting the job, Laurence discovered that in two year's time a secret empire called the Manhattan Engineering District had been built throughout the United States and Canada and as far away as the Belgian Congo. He was first given a thorough indoctrination in Washington, D.C., and then was allowed to visit plants at Oak Ridge, Hanford and Los Alamos.[22]

His immediate task was to prepare drafts of releases covering all phases of the project. These were to be distributed by the War Department to all media as its releases, and not the property of the Times or Laurence.

One difficulty faced by Laurence was preparing alternative "what if" drafts: What if the test of the bomb at Alamogordo failed? What if something went wrong and the scores of scientists and technicians--as well as the press release writer himself--came to an unexpected explosive end?

For the test of the bomb at Alamogordo, Groves had Laurence prepare four separate releases in advance to cover four possible outcomes in case

the bomb was not a dud: (1) a loud explosion heard for many miles accompanied by a great burst of light, but without any damage to property or loss of life; (2) a similar but larger explosion with some property damage; (3) an even larger explosion than the first two, with considerable damage to property and loss of life; and (4) "the most difficult of all": extensive damage and the death of many of the country's top scientists.

Said Laurence:[23]

> I told a lurid story of several large dumps of an extremely powerful new explosive, without telling what it was, that had blown up accidentally. As for the scientists' being there, I explained it was one of those strange coincidences that sometimes takes place by unfathomable quirks of fate. It happens that Dr. Oppenheimer owns a dude ranch in that part of New Mexico, and I blamed it all on the fact that he had invited his colleagues to spend a weekend with him in the salubrious New Mexico climate. Their being there, of course, had nothing to do with the explosion.

There were also the White House statements which had to be prepared for delivery by President Truman and Secretary of War Stimson after the dropping of the bombs on Japan. These were written by Laurence in consultation with the Interim Committee after that Committee had made the final recommendation to Truman in June 1945 to bomb Japan.[24]

Originally, Laurence had prepared a draft for a half-hour radio address by the President, but since Truman was in the mid-Atlantic aboard the U.S.S. Augusta on his way home from the Potsdam Conference when announcement of the dropping of the bomb on Hiroshima was made, the radio address--very lengthy and emphasizing the tremendous destructive power of the atomic explosions--was revised and formed the basis of Truman and Stimson's statements released on August 6.[25] In that first statement by Truman on the atomic bomb, amid all the accounts of its destructive power, was the account of the most remarkable feat in scientific history:[26]

> ...But the greatest marvel is not the size of the enterprise, its secrecy, nor its cost, but the achievement of scientific brains in putting together infinitely complex pieces of knowledge held by many men in different fields of science into a workable plan.... What has been done is the greatest achievement of organized science in history. It was done under high pressure and without failure....

Then Truman added what grew into one of the longest and most heated controversies in history--control of information on atomic energy and weapons production:

> It has never been the habit of the scientists of this country or the policy of this Government to withhold from the world scientific knowledge. Normally, therefore, everything about the work with atomic energy would be made public.
>
> But under present circumstances it is not intended to divulge the technical processes of production or all the military applications pending further examination of possible methods of protecting us and the rest of the world from the dangers of sudden destruction.

MEDIA COVERAGE OF THE BOMB

Newspapers

On Aug. 7, 1945, newspapers across the country led with the story of the atomic bomb dropped on Hiroshima, and there followed for the next two weeks daily headlines concerning the bomb and the end of the war. For this study, the representative newspapers examined included the New York Times, the New York Herald Tribune, the Chicago Daily Tribune and the Boston Globe.

The newspapers, with the exception of the Times, were examined for their news content from August 7 through August 19, 1945. The Times and the magazines were examined from August 7 through Dec. 31, 1945.

Of all the attempts to offer the public as full an explanation of the whys and wherefores of atomic energy--in a way the average reader could comprehend--the New York Times led the way. In part this was due to having had "its man" on the scene. But more significantly, it was due to the Times stressing the use of feature articles covering every phase

of atomic energy.

From August 7 through December 31, the Times printed 633 articles related to the bomb or atomic energy. Of those 10 were lengthy feature articles; 10 were an exclusive series on atomic energy by Laurence; 53 were editorials; 282 were scientific or general in nature; and the remaining 246 dealt with international and domestic atomic bomb politics.[27]

On August 7 even the generally conservative New York Times devoted two-thirds of the front page to the atomic bomb and printed 30 articles on the topic. The page 1 three-line, eight-column headline ran:

FIRST ATOMIC BOMB DROPPED ON JAPAN;
MISSILE IS EQUAL TO 20,000 TONS OF TNT;
TRUMAN WARNS FOE OF A 'RAIN OF RUIN'

One of the three editorials on the bomb that day was entitled, "Science and the Bomb."[28] In an unusual departure from its editorial format, the Times provided a lengthy history of atomic bomb production and a discussion of neutron splitting of atoms. In more than 1,300 words (about three times the length of an average editorial), the Times discussed the work of Hahn and Strassman (who first split the atom), then the problems of producing a weapon based on atomic fission, and finally the possibilities for peacetime applications of atomic energy. The explanations were not glossed-over generalities but in-depth descriptions of the principles involved.

This editorial set the trend for the Times coverage of the subject for the remaining days of 1945.

On Sunday, August 12, the Times reviewed the week's developments. Its magazine carried a feature story by free-lance writer Harry Davis on the history of atomic energy,[29] and Waldemar Kaempffert, the Times science editor, wrote a review, "The Story Behind the Atomic Bomb."[30] On August

19, the Times carried a magazine feature by Kaempffert on the peacetime applications of atomic energy.[31]

These features and editorial were just part of the Times back-up material for the War Department releases, wire service and reporter coverage of the atomic bomb. In addition, from September 26 through October 8, the Times ran a 10-part series by Laurence covering every aspect of the Manhattan project.

Other newspapers did not appear to be as concerned as the Times with whether or not their readers understood what an atomic bomb was or how it came into being.

Like the Times, the New York Herald Tribune used a three-line, eight-column headline on August 7 to announce the birth of the atomic age:

> FIRST ATOMIC BOMB SMASHES JAPANESE CITY;
> NEW WEAPON EQUALS 20,000 TONS OF TNT;
> TRUMAN TELLS FOE TO QUIT; SHORTER WAR SEEN

In addition to such items as the complete texts of Truman and Stimson's war releases, the Herald Tribune ran several stories on the history of the bomb and the people involved, and a "unique" story on page 1 by the paper's science reporter, John J. O'Neill.[32]

In trying to "scoop" the other newspapers, O'Neill gambled and goofed. The headline was acceptable enough: "Atomic Bomb's Warhead Is Put At 25 Pounds," but the subhead revealed O'Neill's guesswork on the bomb: "A New Chemical Element, Pluto (italics mine), May Be a Part of Uranium-Energy Missile."

Wrote O'Neill:

> A new chemical element, Pluto, was created by science to produce a sub-atomic energy source.
> The new element never existed in Nature. It was created entirely by artificial processes and was found to have explosive properties

> even greater than U-235, which was the original source through which tremendous amounts of atomic energy were released from matter--three million tons as much as is released from equal amounts of TNT....

The element O'Neill called "Pluto" was really plutonium (element 94) and was revealed for the first time by the government on August 12 with the release of the Smyth Report, which was a lengthy document prepared by Dr. Henry DeWolf Smyth at the request o Gen. Groves covering all the technical aspects of the Manhattan Project (excluding classified details on the bomb's manufature).[33]

In the preface to the report, Smyth explained its purpose:

> The ultimate responsibility for our nation's policy rests on its citizens and they can discharge such responsibilities wisely only if they are informed. The average citizen cannot be expected to understand clearly how an atomic bomb is constructed or how it works, but there is in this country a substantial group of engineers and scientific men who can understand such things and who can explain the potentialities of atomic bombs to their fellow citizens. The present report is written for this professional group and is a matter-of-fact, general account of work in the United States since 1939 aimed at the production of such bombs....

This report, which was the most complete document on atomic energy to date, was distributed by the War Department to the same outlets as received Laurence's interpretive articles. The Smyth report, although technical, contained a wealth of information that any competent writer with some college chemistry and physics background could interpret for the general public.

The report was released in time for the Sunday, August 12, editions of newspapers across the country.

The New York Herald Tribune carried a UP story on the Smyth report, but the article didn't mention plutonium (O'Neill's "Pluto").[34] A story on plutonium, however, did appear on page 19, sans a correction on O'Neill's August 7 story.[35]

In general the Herald Tribune did little in the way of providing scientific explanations in the first two weeks following the dropping of the bomb on Hiroshima. The emphasis was on war reporting, not science.

The Chicago Daily Tribune rewrote the War Department releases--including those statements by Truman and Stimson--embellishing where the editors deemed it necessary, but keeping the quotation marks accurately around release paragraphs.

The Tribune offered its readers some original stories, most of which centered around the "local angle" of the secret work on the atomic pile that had been going on for the past three years at the University of Chicago. The paper used local professors as sources for background information on several occasions, and gave the city a special pat on the back with a modest editorial, "Chicago: Scientific Center of the World."[36]

In the first two weeks the Tribune printed no thorough features of a truly scientific bent, although on the first day, August 7, it presented its readers with a do-it-yourself approach. On page 4 was a single-column article: "Webster's Definitions of the Terms Used in the Atomic Bomb Story."

Like Chicagoans, Bostonians, too, are proud of their city's intellectual community, and the Boston Globe made full use of the fact that several of the most prominent figures in the atomic bomb project, such as Vannevar Bush, James Conant, and Arthur Compton, had their roots at Harvard and MIT.

The Globe was able to scoop the Tuesday morning papers with its Monday, August 6, evening edition headline:

ATOMIC BOMB BLASTS JAPAN:
YANKS LOOSE MOST DESTRUCTIVE FORCE IN HISTORY;
SECRET WEAPON USED FOR FIRST TIME SUNDAY

and a series of stories on the bomb, including the full text of Truman's

release.

The August 7 morning edition carried a semi-scientific explanation of the bomb in a by-line story on page 1,[37] and a diagram of atom-splitting and an article by Howard W. Blakeslee, AP science editor, on page 3. On Wednesday it carried another semi-scientific account of the differences between atomic and conventional bombs.[38] And in the Sunday, August 12, edition, the paper ran a lengthy story recounting (and crediting) Laurence's 1940 tale that appeared in the Saturday Evening Post.

The Globe obviously had put some reporters to work Saturday night combing the Smyth Report, and offered stories on the 12th on the meaning of atomic power and the discovery of elements 93 and 94.[39]

But scientific enthusiasm waned after the 12th, and no further features were presented in the next week.

In summary, the representative newspapers concentrated on the war and the drama of the bomb, not on its scientific nuances, although the New York Times did give repeated and thorough coverage of the scientific aspects. But in general the layman was getting his newspaper dose of scientific information only in atomic size quantities.

Magazines

Among the magazines examined for atomic news coverage were Time, Newsweek, Life, Saturday Evening Post, Saturday Review of Literature, Atlantic, Harper's, Business Week, Reader's Digest, New Republic, Nation, Science Digest, Popular Science and Science News Letter. Coverage in these magazines from August through December ran the gamut from vapid and overly simplistic in such magazines as Science News Letter, Science Digest and

Reader's Digest; to reasonably informative in Newsweek, Time and Life; to excellent in Business Week.

It is difficult to categorize the science coverage in all magazines. But Business Week had the most thorough and well-written articles on the atomic age. On Sept. 1, 1945, the magazine published a special eight-page scientific section entitled, "The Atom, New Source of Energy."[40] In an introduction to the section, James H. McGraw Jr. (president of McGraw-Hill) explained why Business Week felt a need to offer scientific explanations of the atomic age:[41]

> ...Control (of the atomic bomb) is not possible without understanding....
> Coldly scientific in form, the "Smyth Report"...traces the scientific course of atomic engineering through the five years of news blackout....Other writers in other places will unfold the epic story....The aim (of this report) is more immediately practical--to give the professional and business readers...a sound and honest, though non-technical understanding of this atom smashing business, so that they will know better what to do about it in their personal and business lives.

The report included (1) learning the shape of atoms and how atom splitting releases energy; (2) creating and isolating high power atoms; and (3) what to expect from atomic energy in the future.

Business Week also gave stories on plutonium, sources of uranium, highlights of the Smyth Report, industrial applications, and scientists' opinions on secrecy.

Other weekly publications such as Time, Newsweek and Life, presented historical and quasi-scientific explanations in the weeks immediately following the dropping of the bomb. Most of these, however, were relatively compact and non-technical. The three gave almost the same relative amount of science news in their overall coverage of the bomb, and presented it in relatively the same fashion.

The more specialized magazines varied on the kinds of science coverage they offered.

The New Yorker, for example, concentrated on profiling figures involved in the Manhattan Project, such as Harold Urey, William Laurence and the Counter-Intelligence Corps ("the CREEPS"). All of these were written in a light yet informative vein, and although they did not present any scientific data, they provided unusual background information.

Bernard Jaffe in the New Republic offered an excellent review of the Smyth Report (Oct. 15, 1945), but his story, "How the Bomb Came to Be," (Sept. 17, 1945) was more historical than scientific in its approach.

Atlantic offered three articles on the atom in 1945, one dealing with world government, another with physicists' reaction after the war, and the third, a commentary by Einstein on the morality of the bomb. All these articles were more political than scientific in nature.

The Saturday Evening Post enjoyed basking in the glory that its 1940 story by Laurence had won it, and reprinted that article rather than try to top its "classic." In November, however, it ran an article by Joseph Marshall on the security and censorship strategy of the Manhattan Project.

The Saturday Review of Literature went to the scientists themselves for two stories, both political in nature: one by J. Robert Oppenheimer on "Atomic Weapons and the Crisis in Science," and the other by Henry D. Smyth on world law, entitled, "The Lesson of Atomic Energy."

Also concentrating on the politics of the bomb were articles by Smyth and Richard Schlegel in Nation.

Most disappointing in their science content were articles that appeared in the "pulps" of the science field--Science Digest and Science

News Letter. The Digest articles were condensed reprints that were elementary in nature and lacking in content. The Science News Letter articles were diverse in subject matter but too short and superficial to be of any scientific value.

In contrast to these two, a third scientific "pulp" magazine, Popular Science, offered an excellent, thorough account of atomic research in the October issue entitled, "What's Behind Atomic Power?" by Alden Armagnac, and a simple one-page "atomic" dictionary, "Language of Atomic Power."

In summary, the magazines mentioned above were not the only ones writing stories about the atomic bomb. They were, however, among the major periodical sources of scientific data on atomic energy for the layman. But like their newspaper counterparts, they offered only token amounts of science coverage when compared with the massive amounts of moral and political discussion on the bomb.

From these data it can be seen that for all the government's concern over making sure the public got the facts, through Laurence's releases and Smyth's technical report, the people weren't getting much science coverage anyway.

SCIENTISTS REACT

A survey on the public's reaction to the atomic bomb, taken in 1945 and again in 1946, showed that John Q. Public apparently was not concerned about the scientific aspects of the bomb. Out of 6,000 persons interviewed, only three per cent could correctly name the materials from which atomic energy was being produced, and only eight per cent knew who Gen. Leslie R. Groves was.[42]

The findings suggested:[43]

> ...Public concepts of the bomb vary from the very simple to the highly sophisticated....The majority (of the American public) have found a way to push the bomb into the back of their minds. Many feel that the creative genius of America, in which they have great faith, will perfect a defense before this country is threatened.

That "creative genius of America"--the group of scientists who brought the bomb into being--was the same "creative genius" that made the initial moves in every phase leading to the atomic age. It was the scientists who realized uranium fission could produce a weapon of enormous destruction--one potent enough to change the course of the war.

It was the scientists who persisted in their attempts to interest the government in supporting production of such a weapon.

It was the scientists who voluntarily limited their free-flow of ideas and concentrated solely on the government's "right to know" about atomic energy.

It was the scientists who began to question the moral implications of using the weapon they had created to fight Germany to destroy another enemy, Japan.

It was the scientists who, after agonizing study of alternatives, had to admit to the President that they could "propose no technical demonstration likely to bring an end to the war"; and that there was "no acceptible alternative to direct military use."[44]

And finally it was the scientists who took the lead for the final time in this atomic saga by speaking out individually and collectively on the need for understanding and control of their creation.

The scientists were aware of their responsibility to urge the American people to learn as much as they could from as many sources as they could before military and governmental decisions were made which would affect the course of their lives for decades to come.[45]

The scientists spoke out in newspapers, in magazines, in personal interviews, in letters to the editor, and on lecture tours. A group of Oak Ridge scientists voiced their feelings in a letter printed in the Saturday Review of Literature:[46]

> We, as scientists who knowingly contributed to the development of atomic power and the atomic bomb, feel keenly the responsibility we accepted in helping to create this force, first used as a weapon of destruction....We feel that it is essential that every individual be made aware of the entirely new conditions this force imposes on the nations of the world and their relations with one another.
>
> We cannot and do not presume to speak as international statesmen or politicians; however, as scientists who produced the weapon, we possess special knowledge of great pertinence in formulating our country's policy with respect to this epochal development....

It was not a sense of freedom or exuberance that overcame the scientists when the atom mushroomcloud burst. It was an awesome sense of commitment to making the world understand what they had created.

Professor Harold C. Urey was one of those who took this responsibility most seriously:[47]

> I have dropped everything to try to carry the message to the people...because if we can't control this thing, we won't have any science worthy of the name in the future. I know the bomb can destroy everything we hold valuable, and I get a sense of fear that disturbs me in my work. I feel better if I try to do something about it.

J. Robert Oppenheimer, at the time the test bomb exploded at Alamogordo, is said to have uttered a passage from the Bhagavad-Gita, the sacred book of the Hindus: "I am become Death, the Shatterer of Worlds."[48]

To reconstruct that "shattered world" scientists shifted from white-coated laboratory men to statesmen. By October of 1945, when atomic bomb discussion in the press had become almost exclusively political in nature, scientists were actively engaged in the arms control debate. And so it continued for them as well as for the public--less science, more politics--until the formation of what is today our atomic watchdog, the Atomic Energy Commission.

FOOTNOTES

1. William L. Laurence, Men and Atoms (New York: Simon and Schuster, 1959), p. 3. Dr. Henry D. Smyth in Atomic Energy for Military Purposes suggests that the meeting which actually caused the first press stir on the subject was held Jan. 26, 1939, in Washington, D.C.

2. Ibid., p. 8.

3. Arthur H. Compton, Atomic Quest, A Personal Narrative (New York: Oxford University Press, 1956), pp. 25-6; William L. Laurence, Dawn Over Zero (New York: Alfred A. Knopf, 1947), p. 49; Louis N. Ridenour, "Science and Secrecy," American Scholar 15 (April 1946):149.

4. Compton, op. cit., p. 27.

5. Henry D. Smyth, Atomic Energy for Military Purposes; The Official Report on the Development of the Atomic Bomb Under the Auspices of the U.S. Government, 1940-1945 (Princeton: Princeton University Press, 1945), pp. 51-3; 70-3.

6. Ibid., p. 78.

7. Leslie R. Groves, Now It Can Be Told; The Story of the Manhattan Project (New York: Harper & Bros., 1962), p. 17. The name MED, said Groves, was chosen because the office of Col. J.C. Marshall, charged with the new "district" was in New York, and the military thought the term MED would cause less curiosity than DSM. (p. 17)

8. Ridenour, "Science and Secrecy," p. 149.

9. Compton, Atomic Quest, pp. 115-6.

10. William L. Laurence, "Vast Power Source in Atomic Energy Opened by Science, New York Times, May 5, 1940, p. 1.

11. _____, "The Atom Gives Up," Saturday Evening Post, Sept. 7, 1940, p. 12.

12. _____, Men and Atoms, pp. 42-44.

13. Ibid., p. 48. Laurence's Post article, it later turns out, was taken out of circulation in 1942 by the government after it had been decided to go all out on the production of the atomic bomb. It was removed from library shelves across the country, and anyone requesting copies of the issue was investigated by the FBI. It was even classified "Secret" by the government, and Laurence himself was not permitted to refer to it while working for the MED.

14. John J. O'Neill, "Enter Atomic Power," Harper's Magazine 181(June 1940):1-10.

15. "Writer Charges U.S. with Curb on Science," New York Times, Aug. 14, 1941, p. 15.

16. Robert E. Summers, comp., Wartime Censorship of Press and Radio (New York: The H.W. Wilson Co., 1942), pp. 258, 264.

17. Joseph Marshall, "Keeping the Bomb Secret," Saturday Evening Post, Nov. 10, 1945, p. 44.

18. Ibid.

19. "Science Hush-Hushed," Time, May 11, 1942, reprinted in Summers, Wartime Censorship, pp. 144-5.

20. Laurence, Men and Atoms, p. 95.

21. Ibid., p. 96.

22. Groves, Now It Can Be Told, p. 326.

23. Laurence, Men and Atoms, p. 110.

24. Harry S. Truman, Memoirs (Garden City, N.Y.: Doubleday, 1955-1956), pp. 418-19.
    Members of the Interim Committee included Sec. of War Stimson as chairman; George L. Harrison, president of N.Y. Life Ins. Co. and special consultant to Stimson; James F. Byrnes, personal representative of the President; Ralph A. Bard, undersecretary of the Navy; William A. Clayton, assistant secretary of State; Vannevar Bush; Karl T. Compton, and James B. Conant. Advising this group was a scientific panel consisting of Enrico Fermi, Edward O. Lawrence, J. Robert Oppenheimer, and Arthur H. Compton. This committee was also responsible for drafting a bill for the domestic control of atomic energy after the war.

25. Laurence, Men and Atoms, p. 111; Groves, Now It Can Be Told, p. 326.

26. "Text of Statements by Truman, Stimson on Development of Atomic Bomb," New York Times, Aug. 7, 1945, p. 4.

27. New York Times Index, 1945.

28. "Science and the Bomb," New York Times, Aug. 7, 1945, p. 22.

29. Harry M. Davis, "We Enter a New Era--the Atomic Age," New York Times Magazine, Aug. 12, 1945, p. 5.

30. Waldemar Kaempffert, "The Story Behind the Atomic Bomb," New York Times, Aug. 12, 1945, Sec. IV, p. 4.

31. _____, "The Atomic Engine--How Soon Will It Be?" New York Times Magazine, Aug. 19, 1945, p. 11.

32. John J. O'Neill, "Atomic Bomb's Warhead Is Put At 25 Pounds," New York Herald Tribune, Aug. 7, 1945, p. 1.

33. The report, officially known as "The Official Report on the Development of the Atomic Bomb under the Auspices of the U.S. Government, 1940-1945," was completed on July 28, 1945, and after its release to the press on August 12, was revised and printed in book form under the title, Atomic Energy for Military Purposes by Princeton University Press, 1945.

34. "Atom Explosion Is Above Ground to Lose Its Deadly Rays in Sky," New York Herald Tribune, Aug. 12, 1945, p. 1.

35. "New Elements Were Produced to Make Bomb," New York Herald Tribune, Aug. 12, 1945, p. 19.

36. "Chicago: Scientific Center of the World," Chicago Tribune, Aug. 13, 1945, p. 8. Said the editors: "Last week almost everyone in the world claimed or was allotted credit for releasing atomic energy and making the atomic bomb possible....Censorship has not yet permitted the public to know the full contribution made to the discovery by the University of Chicago, but enough facts have been released to show that it was the major center of research."

37. George A. Orton, "Atom Age: Force in Peacetime Can Alter Civilization," Boston Daily Globe, Aug. 7, 1945, p. 1.

38. Lawrence Griswold, "How Atomic Bomb Works: Terrific Energy of Pressure Waves Smashes Matter," Boston Daily Globe, Aug. 8, 1945, p. 1.

39. William H. Clark, "Atomic Energy Can Make Almost All Our Dreams Come True," Boston Sunday Globe, Aug. 12, 1945, p. 3; "94 Elements in Atomic Bomb, Including New Neptunium," Boston Sunday Globe, Aug. 12, 1945, p. 11.

40. "The Atom, New Source of Energy," Business Week, Sept. 1, 1945, pp. 57-64.

41. Ibid., pp. 57-8.

42. Cornell University, Public Reaction to the Atomic Bomb and World Affairs: a Nationwide Survey of Attitudes and Information (Ithaca: Cornell University Press, 1947).

43. Ibid., pp. 89-90; 195-212.

44. Compton, Atomic Quest, p. 240.

45. "Bomb Is No Secret," New Republic 113(Oct. 8, 1945):451-3.

46. "Letter from Association of Oak Ridge Scientists at Clinton Laboratories," Saturday Review of Literature, Oct. 13, 1945, p. 24.

47. "Interview with Urey," New Yorker, Dec. 15, 1945, pp. 23-4.

48. Laurence, Men and Atoms, p. 118.